

## ABSTRACT OF THE DISCLOSURE

The present invention provides methods, compositions and kits for discriminating between COX-1 and COX-2 activity. In particular, the present invention provides for the detection and/or measurement of COX-2 activity in subjects, samples thereof, and in laboratory tests. The present invention discloses that 2-arachidonylglycerol is a COX-2 selective substrate which is metabolized by COX-2 to prostaglandin glycerol esters (PG-Gs) and that the diversity of PG-Gs parallels that of arachidonic acid derived metabolites of COX. The present invention also provides certain novel COX-2 selective metabolites including prostaglandin I<sub>2</sub>-glycerol ester (PGI<sub>2</sub>-G) and 6-keto-prostaglandin F<sub>1α</sub>-glycerol ester. Methods and kits are described for detecting COX-2 activity comprising detecting PG-Gs (including the novel PG-Gs disclosed herein). Uses for these methods and kits include the detection and monitoring of inflammation and tumors or cancer. Additional uses include the monitoring of test agents in assays to screen for COX-2 specific inhibitors and other laboratory uses.